

Conservation In Transition: Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

Strategic Habitat Conservation

*Final Report of the
National Ecological*

Leaders' Guide

Transformation of State Fish & Wildlife Agencies
Ensuring the Future of Conservation in a Rapidly Changing World

U.S. Fish & Wildlife Service

Conservation in Transition

Leading Change in the 21st Century

<http://www.fws.gov/landscape-conservation/shc.html>

U.S. Fish & Wildlife Service
Strategic Habitat Conservation
Conserving the Nature of America

Home SHC Vision SHC Approach Community Science About Us

SHC APPROACH

- [Strategic Habitat Conservation](#)
- [Biological Planning](#)
- [Conservation Design](#)
- [Conservation Delivery](#)
- [Monitoring and Research](#)

Thinking Bigger for Fish and Wildlife

In 2006, the U.S. Fish and Wildlife Service leadership endorsed **Strategic Habitat Conservation (SHC)** as the conservation approach the agency would use to achieve its mission in the 21st Century. In response to the unprecedented scale and complexity of challenges facing our natural resources, agency leaders saw the need to develop and implement a landscape approach to conservation that was more strategic, science-driven, collaborative, adaptive, and understandable. Indeed, throughout the conservation community, people are relying more and more on strategic approaches that apply advanced science and technologies to questions of how best to target conservation to sustain

What's New:

- [Surrogate Species Draft Technical Guidance](#) **New!**
- [SHC: Thinking Bigger for Fish and Wildlife Fact Sheet](#)
- [Building Capacity for Strategic Conservation through Training](#)

Publications

[Strategic Habitat Conservation](#)

Surrogate Species Training
Moving Forward With Landscape-scale Conservation
San Juan, PR October 2012

Conservation In Transition: Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

Objectives:

- A Closer Look At The “Whys” – How We Got Here
- A Vision: Defining The Conservation Landscape of The Future
 - SECAS: SHC, LCCs, The Role of “Surrogate Species”
- Building On A Solid State



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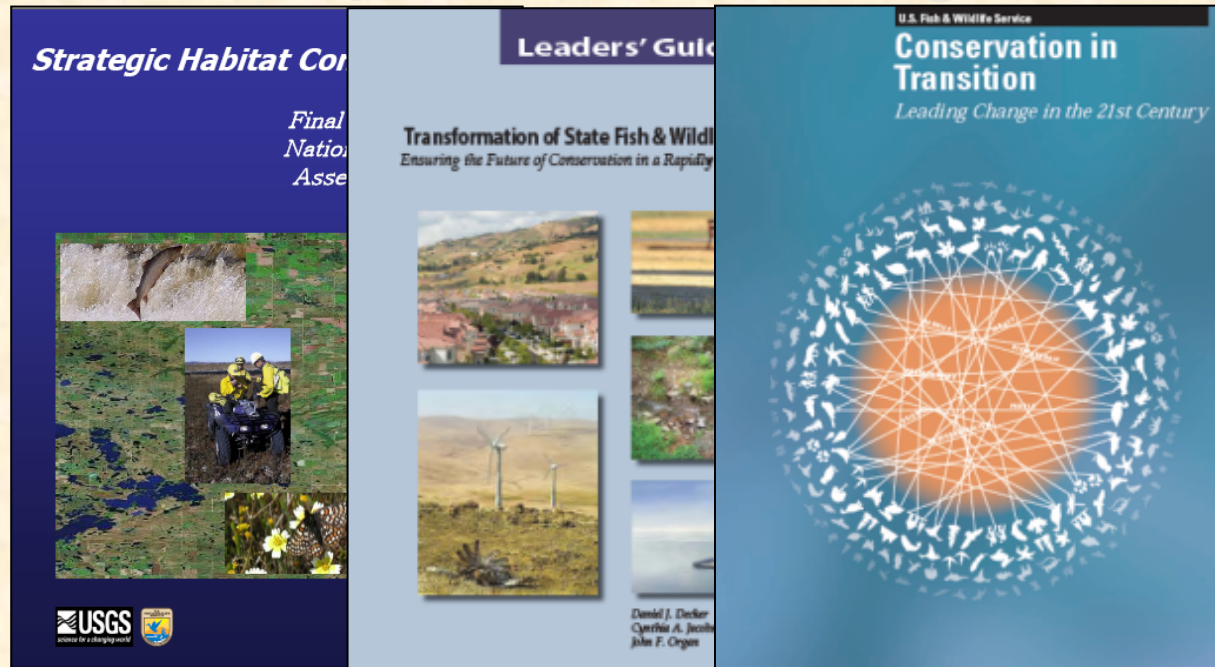
“The world we’re in today is undergoing as rapid a change as any in the history of mankind. Everything necessary to support the world’s population is changing at incredible rates causing increased pressure on the planet, environment, society and individuals in general,” Admiral Samuel J. Locklear, Commander Allied Joint Force Command, Naples. 2011



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Keeping Pace With Perpetual Change



Are Not The
F&W Agencies of
Yesterday

Fish & Wildlife
Agencies Of Today...

Nor Will They Be
The F&W Agencies
of Tomorrow



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Keeping Pace With Perpetual Change

An Operational Comparison of the Changing Nature of Conservation

	Resource Conservation (Manage Resources)	Conservation Science (System Sustainability)
Planning	<ul style="list-style-type: none"> • Activity oriented • Administratively focused • Programmatically explicit • Opportunity based 	<ul style="list-style-type: none"> • Outcome oriented • Model based • Spatially explicit • Multi-scaled • Predictive
Implementation	<ul style="list-style-type: none"> • Protection, restoration, and management <u>pursued as ends</u> • Opportunities prioritized at the project scale 	<ul style="list-style-type: none"> • Protection, restoration, and management <u>pursued as means</u> • Opportunities prioritized against landscape scale assessments
Monitoring & Evaluation	<ul style="list-style-type: none"> • An operational luxury • Appropriate as an element of research 	<ul style="list-style-type: none"> • Essential to assessing outcomes • Integral to structured, adaptive decision making
Research	<ul style="list-style-type: none"> • Priorities are derived from periodic calls to programs and field stations to identify their needs 	<ul style="list-style-type: none"> • Aimed at testing assumptions and uncertainties of biological planning and assessment

Drivers of Change

- Advances In Science & Technology
- Scope & Scale of “System” Changes + Runaway Complexity
- Fiscal and Social Accountability



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Drivers of Change

✓ Advancements in Conservation Theory

- ✓ Conservation Biology
- ✓ Landscape Ecology
- ✓ Ecosystem Management

✓ Advancements in Decision Theory

- ✓ Adaptive Management
- ✓ Structured Decision-making
- ✓ Bayesian Belief Networks

Advancements in Geospatial & IM Technology

- ✓ Geographic Information Systems
- ✓ Remote Sensing
- ✓ Information Management
- ✓ Internet-based Collaboration



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Drivers of Change

✓ Advancements in

✓ Advancements in

Surrogate Species: “species that are used to represent other species or aspects of the environment”. (Caro 2010)

✓ **Landscape Ecology**

✓ **Structured Decision-making**

Population Objective: A measurable expression of a desired biological outcome...sustainability.

Advancements in

Geospatial & IM Technology

Functional Landscapes: Lands and waters with the properties and elements required to support desirable populations of fish and wildlife, while also providing human society with desired goods and services, including food, fiber, water, energy, and living space.

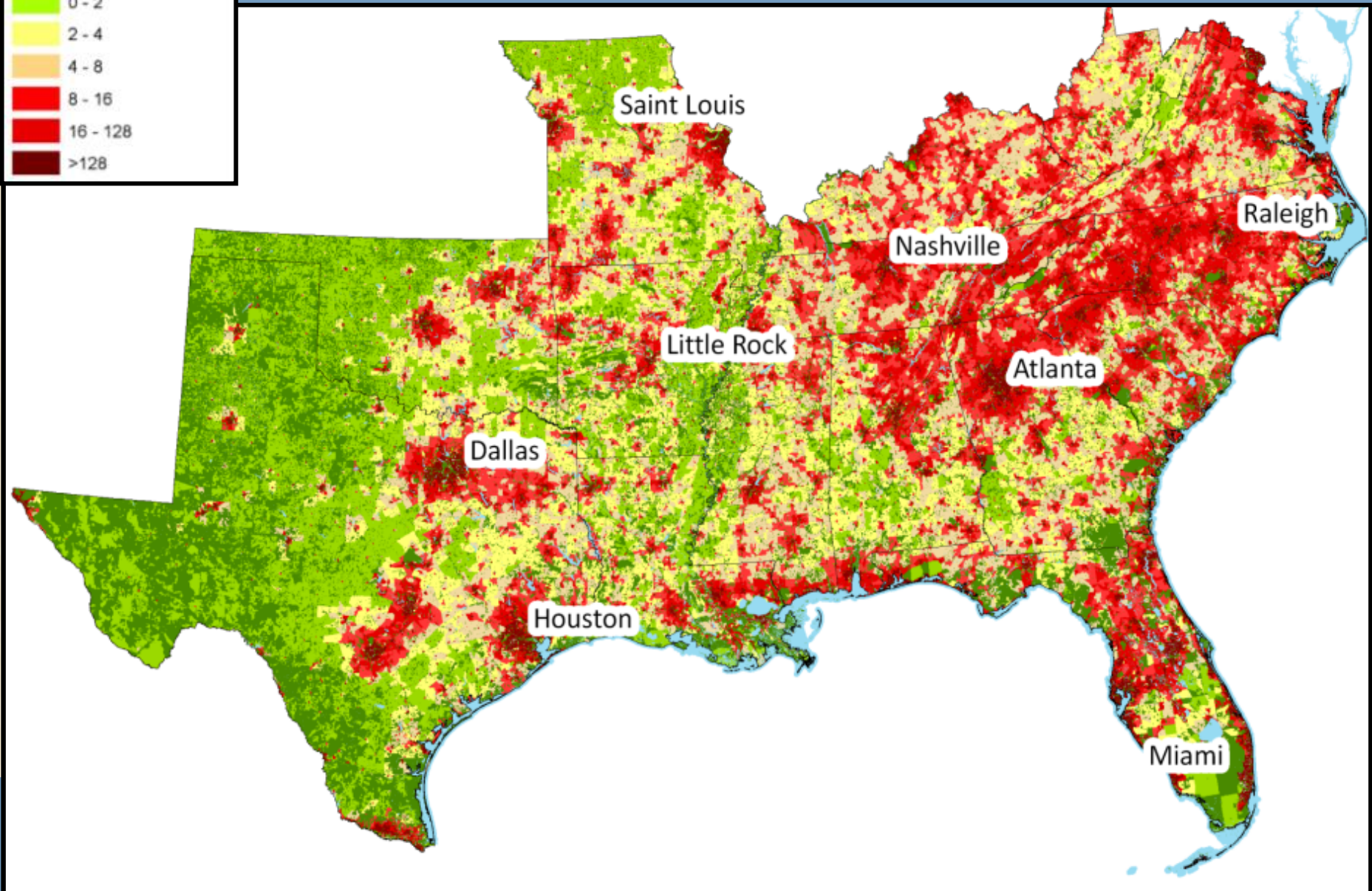


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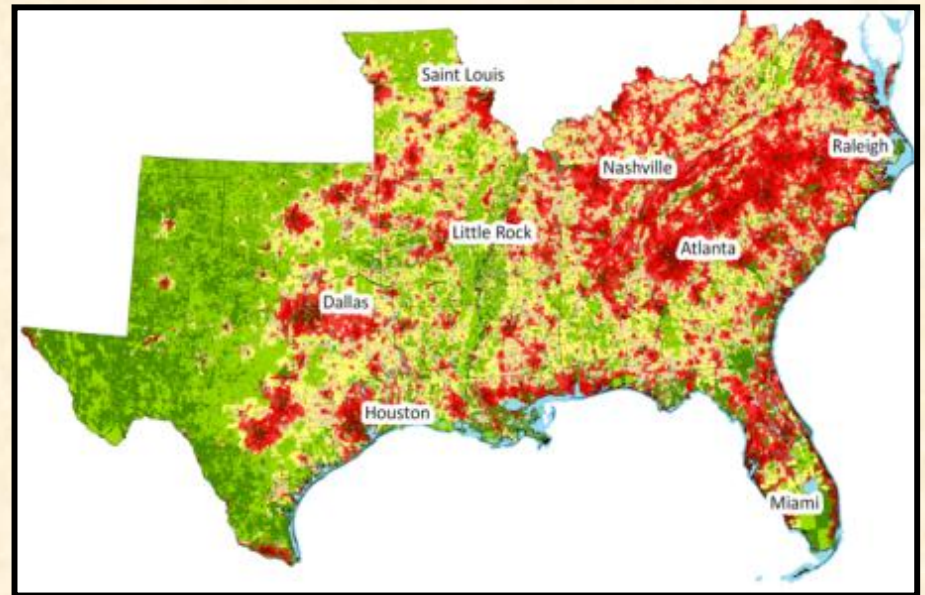
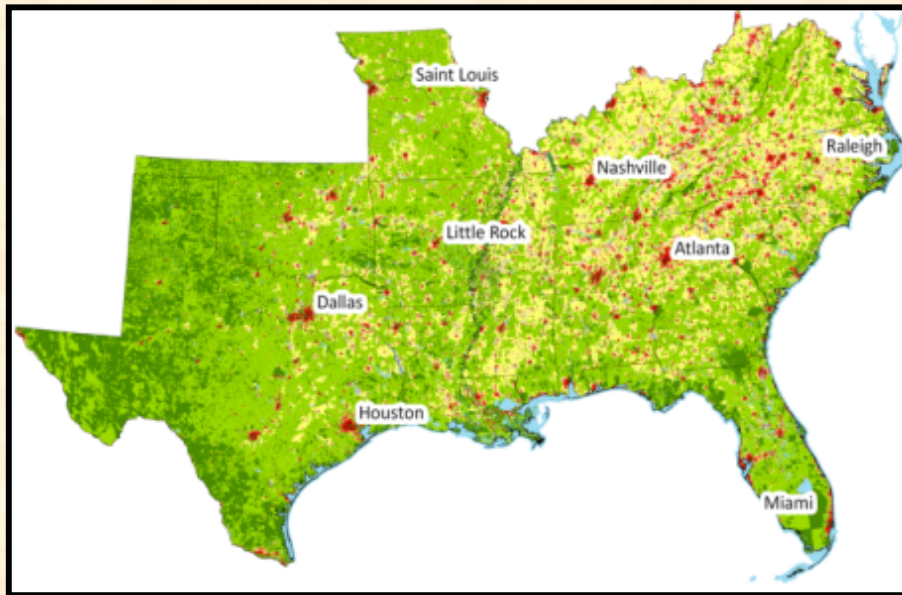
A changing landscape...

2030



Landscape Changers Impacting The Future Of Fish & Wildlife Conservation

If I knew then what I know now??



Urban Growth: 1940 - 2030

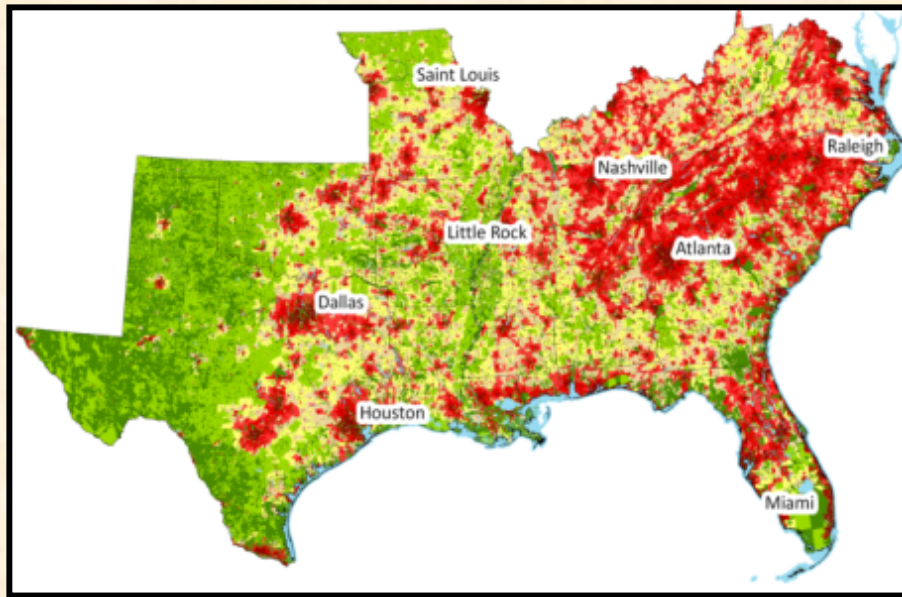


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Landscape Changers Impacting The Future Of Fish & Wildlife Conservation

What tools are available or can be developed to “see” tomorrow?



Urban Growth: 1930 – 20xx



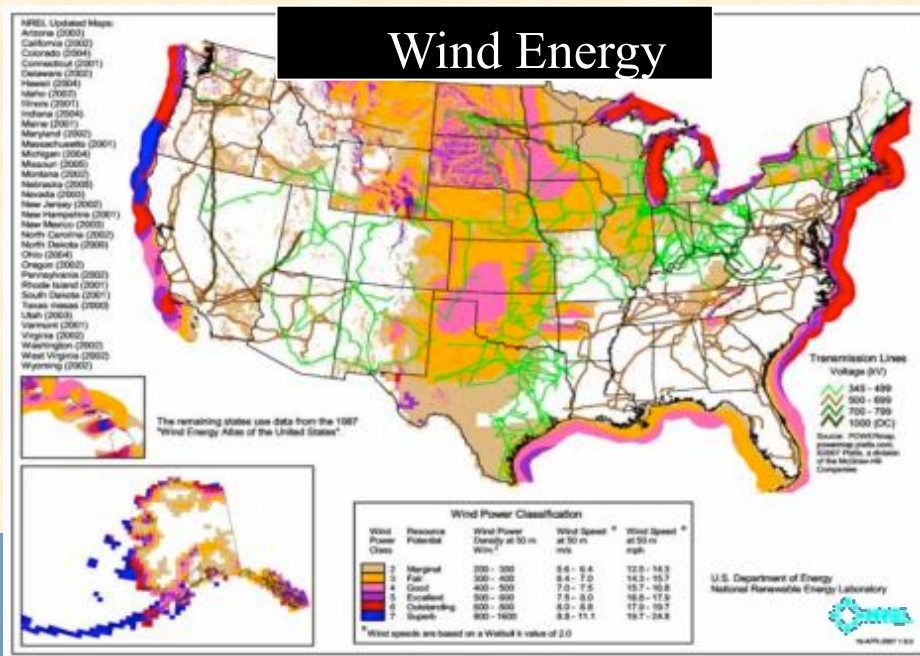
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Global Energy Consumption and Dynamics



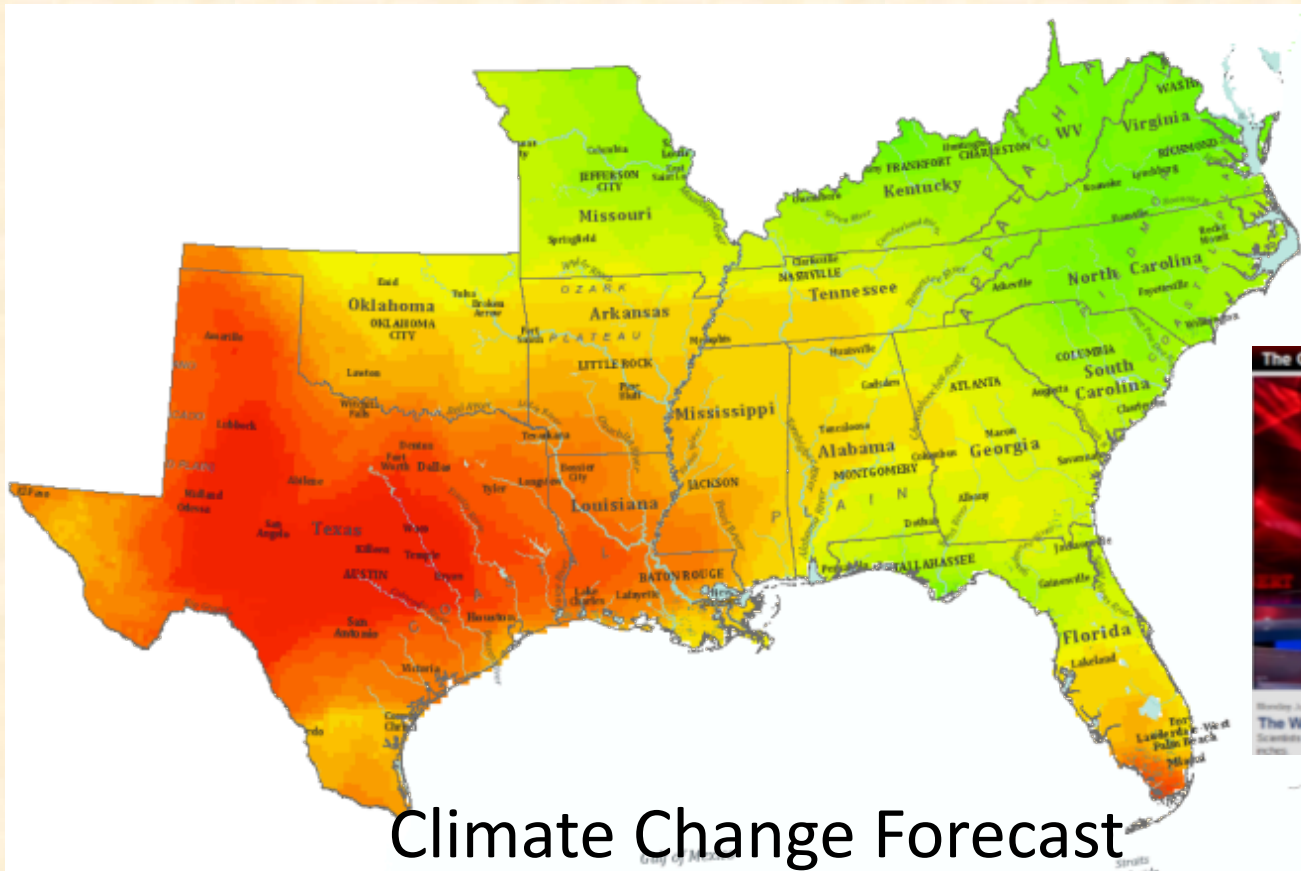
"I challenge you to join me in setting a new goal: By 2035, 80 percent of America's electricity will come from clean energy sources.



Some folks want wind and solar. Others want nuclear, clean coal and natural gas. To meet this goal, we will need them all — and I urge Democrats and Republicans to work together to make it happen."



Changing Climate



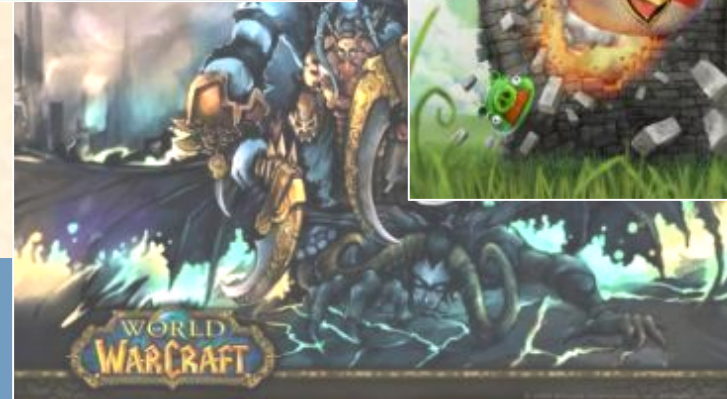
“Sink or Swim”



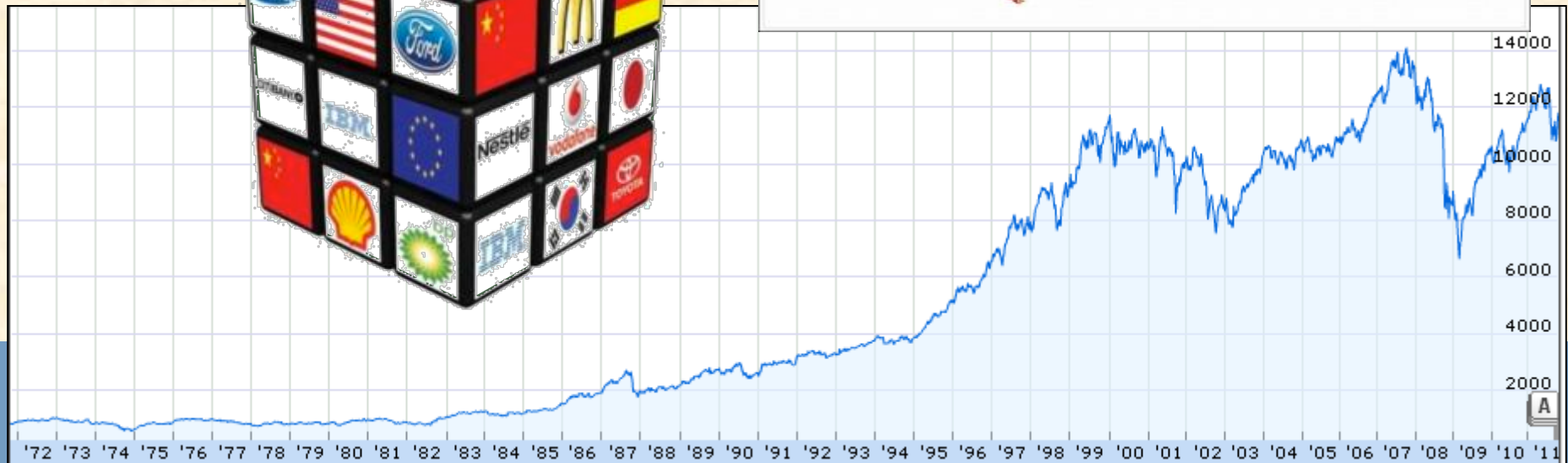
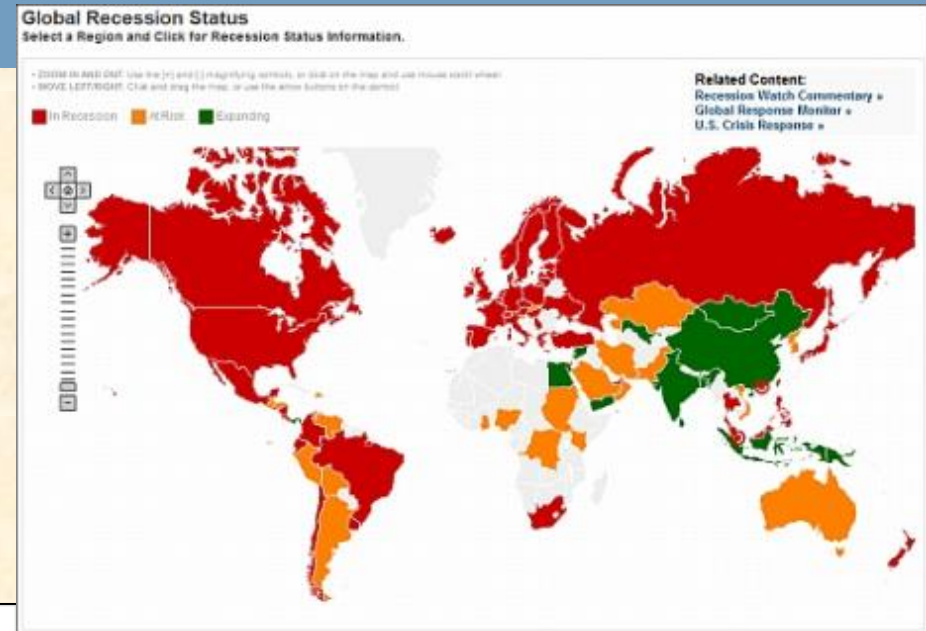
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Societal Changes = Changing Values



Economy & Fiscal Accountability

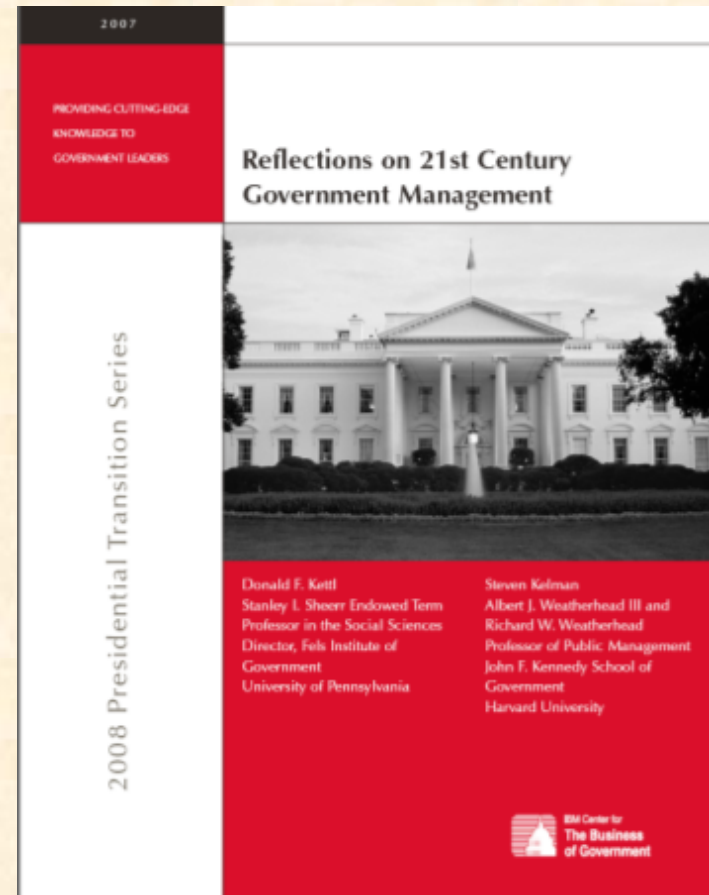


Economy & Fiscal Accountability

“The current conduct of American government is a poor match for the problems it must solve...”

“American governments increasingly face problems that pay little attention to the boundaries created to manage them...”

“If government is to serve the needs of its citizens in the 21st century, it must reconfigure itself – to shift the boundaries of who does what and, even more important, how its work gets done.”



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Economy & Fiscal Accountability

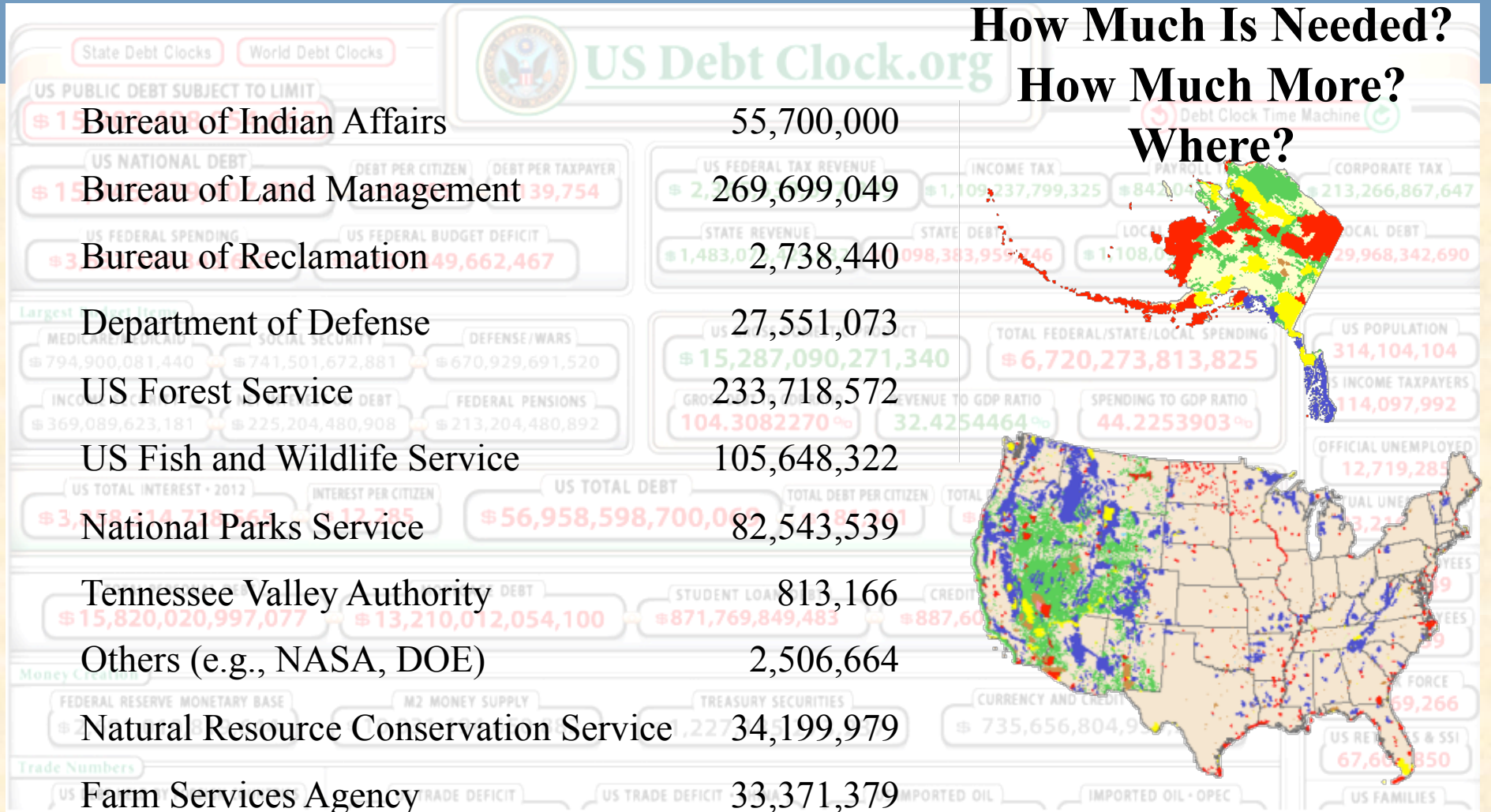


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Economy & Fiscal Accountability

How Much Is Needed?
How Much More?
Where?

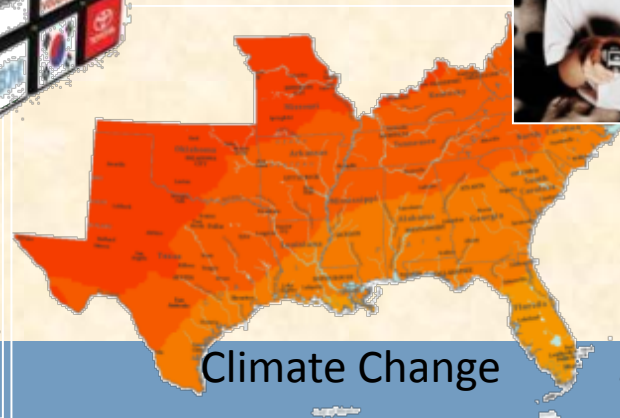
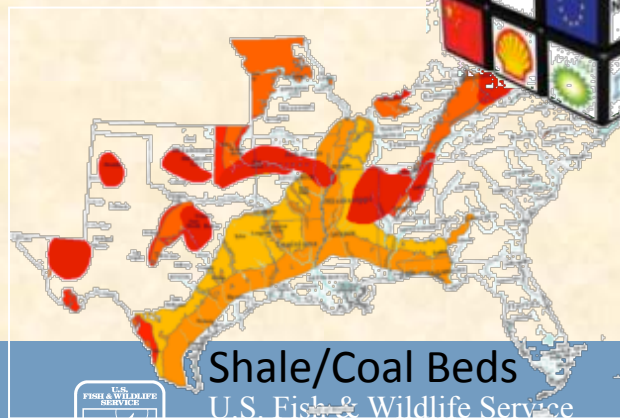
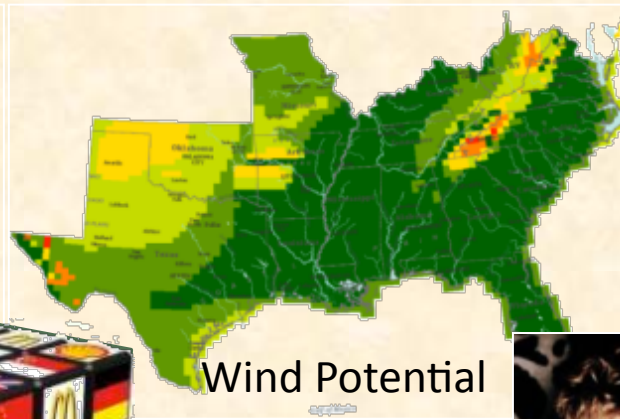
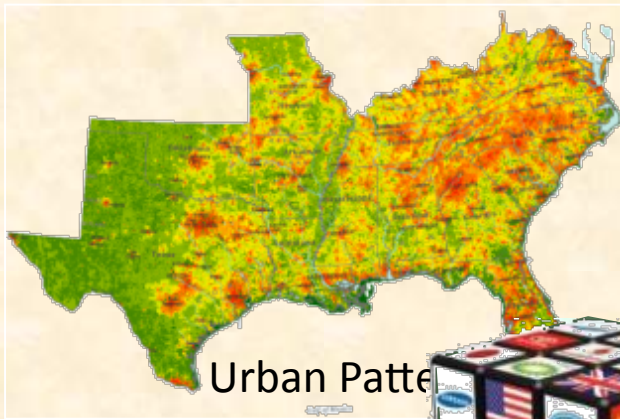


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848,490,183



Scope and Scale of “System” Changes + Runaway Complexity



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Scope and Scale of “System” Changes + Runaway Complexity

21st Century conservation issues...

- Inter-disciplinary in nature
- Multi-scaled in scope
- Span the jurisdictions of multiple agencies and organizations
- Intertwined with issues of socio-economic sustainability



Shale/Coal Beds
U.S. Fish & Wildlife Service

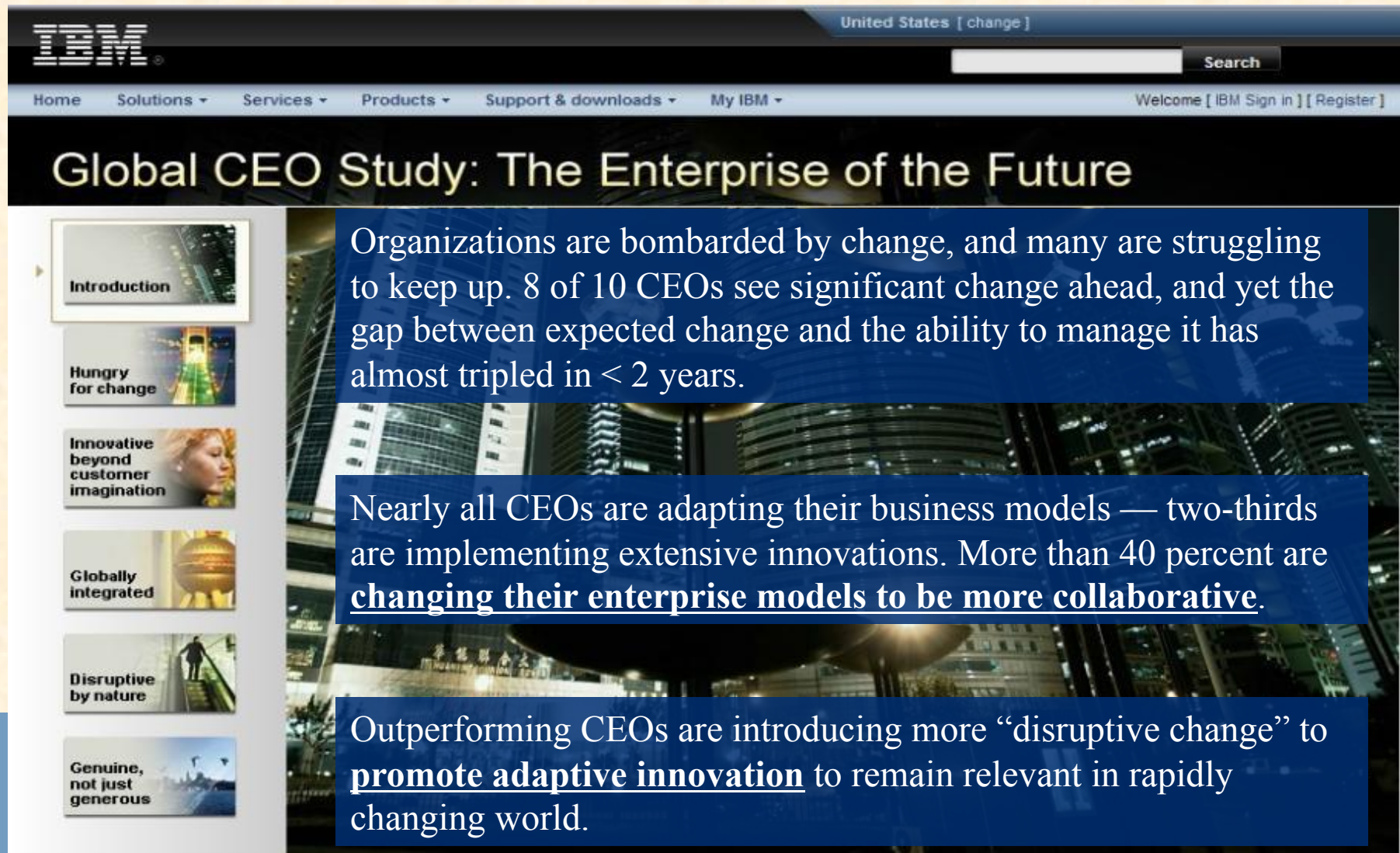
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Climate Change

Water Stress



Scope and Scale of “System” Changes + Runaway Complexity



The image is a screenshot of the IBM Global CEO Study website. The header features the IBM logo, a language selector for "United States", a search bar, and navigation links for Home, Solutions, Services, Products, Support & downloads, and My IBM. A welcome message and links for Sign in and Register are also present. The main heading is "Global CEO Study: The Enterprise of the Future". On the left, a vertical menu lists six topics: Introduction, Hungry for change, Innovative beyond customer imagination, Globally integrated, Disruptive by nature, and Genuine, not just generous. The main content area is a dark blue grid with three text boxes overlaid on it.

United States [change]

Home Solutions Services Products Support & downloads My IBM

Welcome [IBM Sign in] [Register]

Global CEO Study: The Enterprise of the Future

- Introduction
- Hungry for change
- Innovative beyond customer imagination
- Globally integrated
- Disruptive by nature
- Genuine, not just generous

Organizations are bombarded by change, and many are struggling to keep up. 8 of 10 CEOs see significant change ahead, and yet the gap between expected change and the ability to manage it has almost tripled in < 2 years.

Nearly all CEOs are adapting their business models — two-thirds are implementing extensive innovations. More than 40 percent are **changing their enterprise models to be more collaborative.**

Outperforming CEOs are introducing more “disruptive change” to **promote adaptive innovation** to remain relevant in rapidly changing world.

Keeping Pace With Perpetual Change

The Resource Conservation Era (circa 1890 – Present)

Exemplified by public policies originating in the Roosevelt/Pinchot era.
Man/nature relationship seen in a utilitarian, wise use context.

- Conservation Ethic – Resource development as an economic imperative, stewardship as a public responsibility
- Natural resources were segmented and compartmentalized, i.e. forest, soil, water, wildlife, range, etc.
- Practitioners (both scientists and managers) trained in resource-specific disciplines, e.g. forestry, wildlife, range management, soil science.
- The Nation's private, state, federal conservation infrastructure developed following this compartmentalized approach.



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Keeping Pace With Perpetual Change

The Resource Conservation Era (circa 1890 – Present)

originating in the Roosevelt/Pinchot era.
in a utilitarian, wise use context.

21st Century conservation issues...

- Inter-disciplinary in nature
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Objectives:

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Scope and Scale of “System” Changes + Runaway Complexity

The first step toward creating an improved future is developing the ability to envision it. VISION will ignite the fire of passion that fuels our commitment to do **WHATEVER IT TAKES** to achieve excellence. Only VISION allows us to transform dreams of greatness into the reality of achievement through human action. VISION has no boundaries and knows no limits. Our VISION is what we become in life.” ~Tony Dungy



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Scope and Scale of “System” Changes + Runaway Complexity

“Vision controls our perception and our perception becomes our reality”

The right vision – keeps us open to possibilities, it gives us energy, and it makes us more accepting of change.

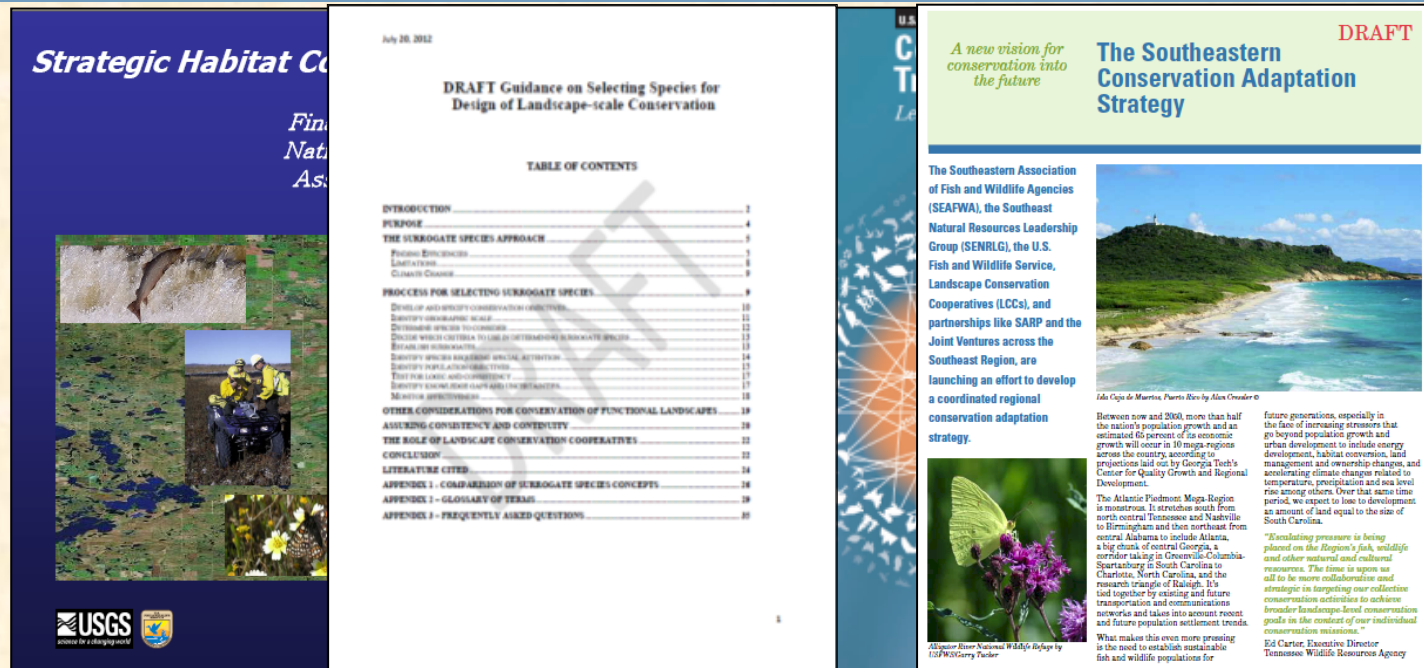
Dewitt Jones



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Keeping Pace With Perpetual Change



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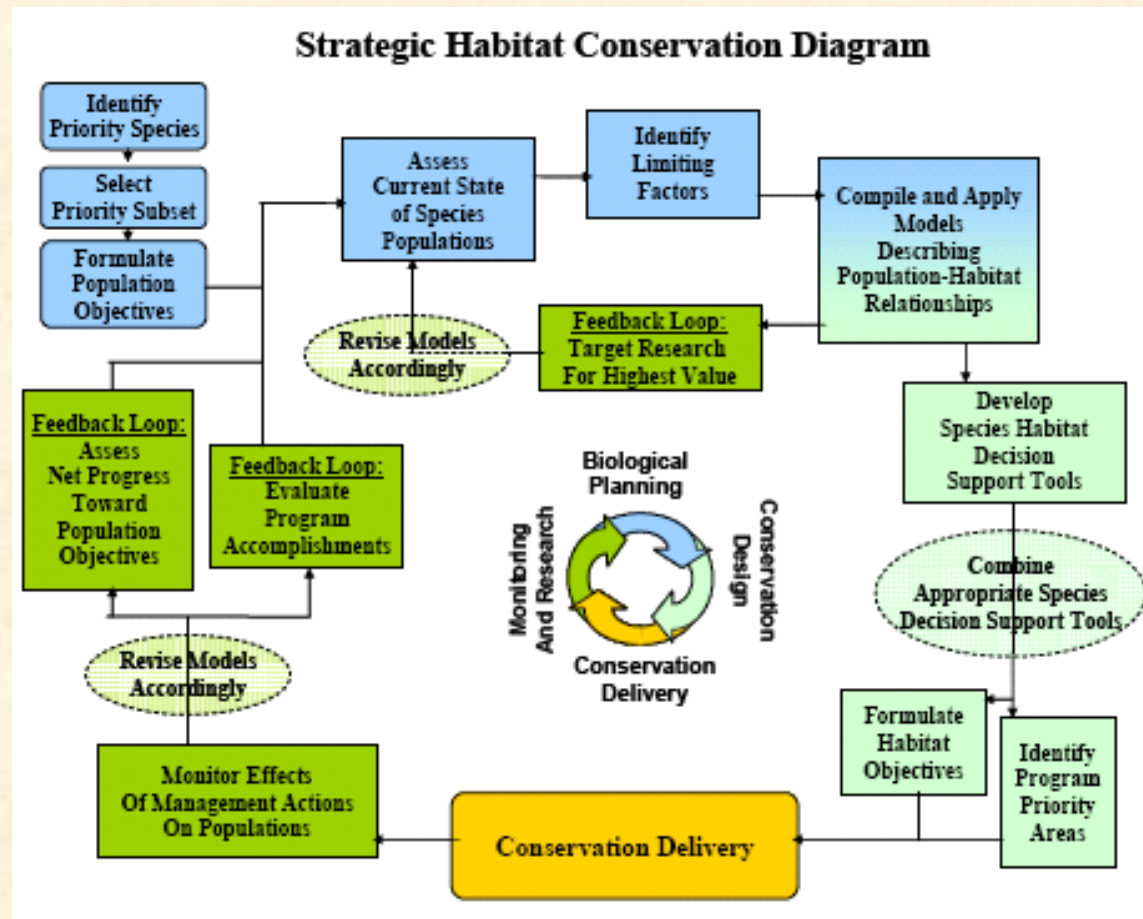


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Foundation Concepts of SHC

- **Science:** As a body of knowledge and as a method of discovery:
 - Learning Becomes an explicit objective of management.



Conservation In Transition: Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

"We must put our work in the context of landscape sustainability...

It makes us Think Bigger, It makes us Better.

We must know why we do what we do.

We must be nibble, able to adapt to remain relevant.

Dan Ashe, Director
US Fish & Wildlife Service
2012



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Foundation Concepts of SHC

- **Conservation Target:** Landscapes that can sustain populations of fish and wildlife resources.
 - How Much, How Much More, and Where?
- **Science:** As a body of knowledge and as a method of discovery:
 - Learning Becomes an explicit objective of management.
- **Landscape:** Land management occurs at the site scale; yet ecological outcomes are system dependent, operating on processes manifested at broader spatial and temporal scales.
 - Addressing the Challenges of Scale
- **Interdependence:** Goals and objectives of functional landscapes to sustain fish and wildlife exceed the operational reach of individual programs, agencies, and organizations
 - Collaboration++

Conservation In Transition: Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

FWS Mission: Working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

Conservation Objective: Characterize and maintain functional landscapes capable of supporting self-sustaining fish, wildlife, and plant populations.

Functioning Landscapes: lands and waters with the properties and elements required to support desirable populations of fish and wildlife, while also providing human society with desired goods and services, including food, fiber, water, energy, and living space.

Dan Ashe, Director
US Fish & Wildlife Service
2012



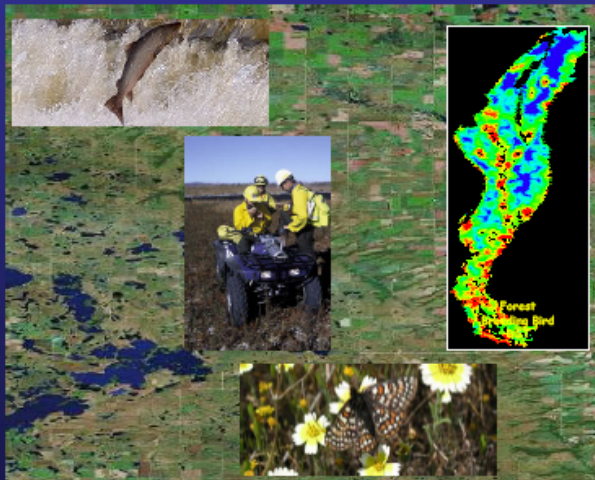
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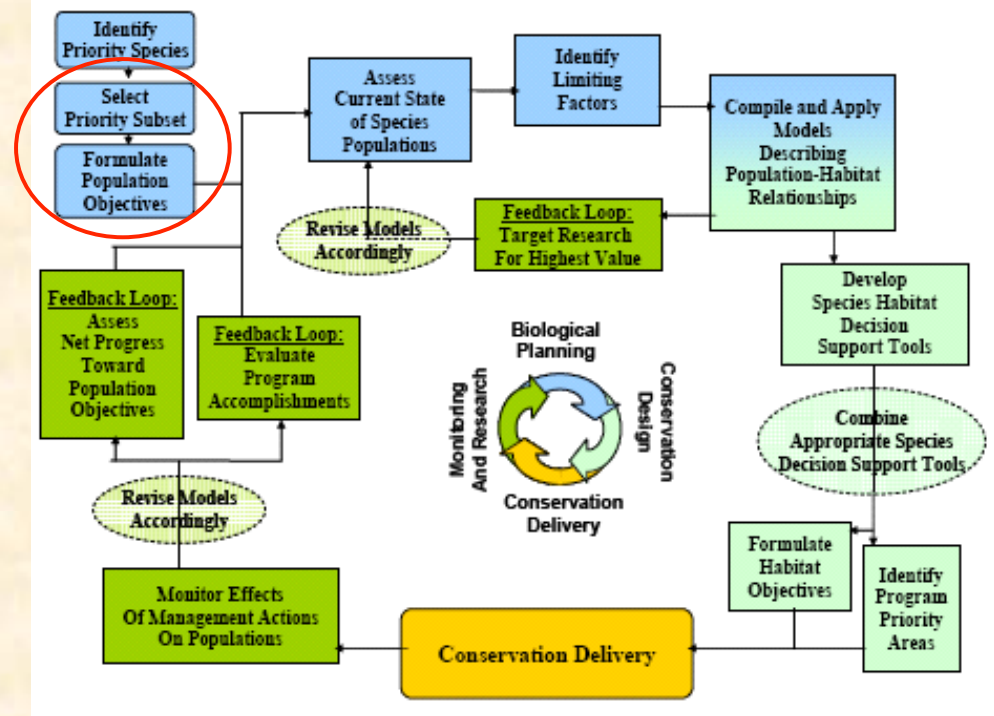
Strategic Habitat Conservation

*Final Report of the
National Ecological
Assessment Team*



July 2006

Strategic Habitat Conservation Diagram



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Strategic Habitat Conservation

July 20, 2012

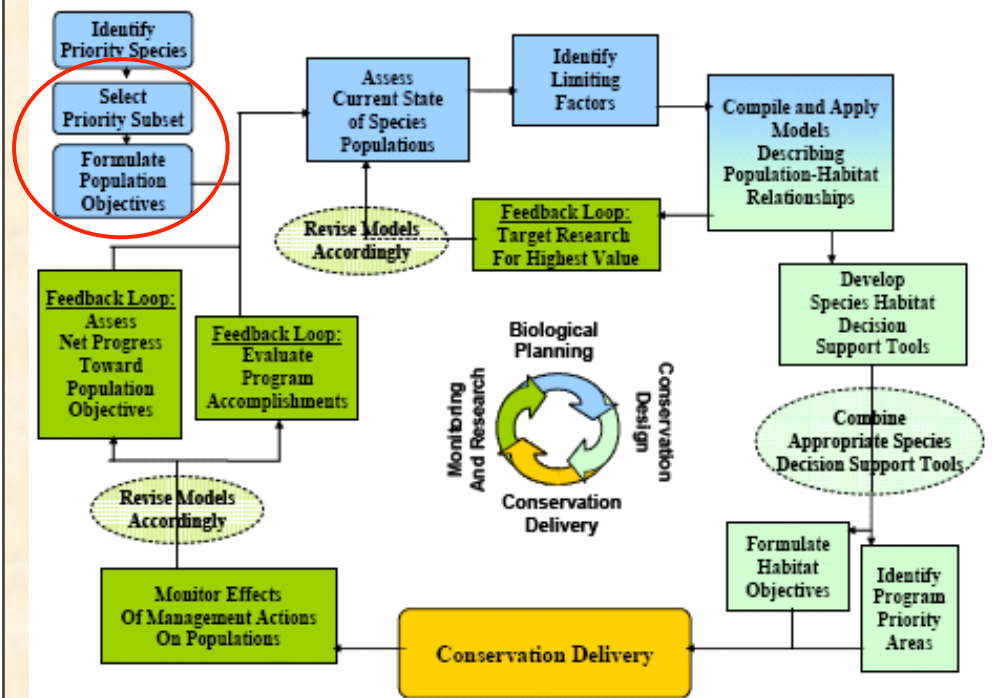
DRAFT Guidance on Selecting Species for Design of Landscape-scale Conservation

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Strategic Habitat Conservation Diagram



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Collaboratively Defining a Future Conservation Landscape in the Southeastern US

1. Explicit Objectives and Measures of Success (Conservation Targets)

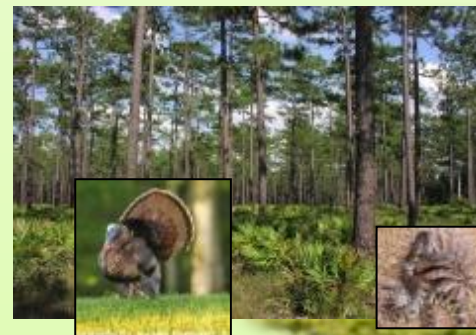
- Species, habitats, ecological processes



Performance and Accountability of Investments

BIOLOGICAL OUTCOMES

How Much, How Much More, and Where?



Responding to The Challenges

SE Conservation Adaptation Strategy

Conservation Landscape of the Future



Southeastern Association of Fish and Wildlife



DNR



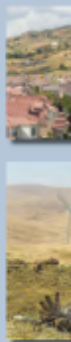
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